This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1.   (original) A method of classifying data according to perceptual properties of the data, the method being suited for searching and sorting large databases of media entities, including music, video and image databases, the method comprising:

assigning to each media entity of a plurality of media entities in a data set to at least one class, each class of said at least one class corresponding to a subset of perceptual properties pre-defined for the data set;

processing each media entity of said data set to extract at least one digital signal processing characteristic for each media entity;

generating a plurality of feature vectors for said plurality of media entities, wherein each vector includes said at least one class and said at least one digital signal processing characteristic; and

forming a classification chain based upon said plurality of feature vectors.

2.   (original) A method according to claim 1, further comprising calculating a neighborhood distance within the vector space of said classification chain for each of said at least one perceptual class.

3.   (original) A method according to claim 2, wherein said neighborhood distance defines a distance within which two vectors in the classification chain space are in the same neighborhood.

4.   (original) A method according to claim 2, wherein said calculating of a neighborhood distance for each of said at least one perceptual class includes determining a distance within which two vectors of the classification chain possess the same class given a threshold degree of error.

5.   (original) A method according to claim 4, wherein a human determines said threshold degree of error that will be tolerated, said threshold degree of error placing a maximum limit on the distance that may be used for determining neighborhoods.

6.   (original) A method according to claim 1, further comprising:

processing an unclassified media entity to extract at least one digital signal processing characteristic for the unclassified media entity;

generating a vector for the unclassified media entity including said at least one digital signal processing characteristic;

presenting the vector for the unclassified media entity to the classification chain; and

classifying the unclassified entry with an estimate of at least one perceptual class by calculating the representative at least one perceptual class of the subset of the plurality of vectors of the classification chain located in the neighborhood of the vector for the unclassified entity.

7.   (original) A method according to claim 6, wherein said classifying of the unclassified entry includes locating the subset of the plurality of vectors of the classification chain located in the neighborhood.

8.   (original) A method according to claim 7, wherein said locating includes calculating, as the set of vectors of the plurality of vectors of the classification chain within the neighborhood distance, the set of vectors of the plurality of vectors of the classification chain within a maximum Euclidian distance for classifying new unclassified entities within a threshold tolerance.

9.   (original) A method according to claim 8, wherein a human determines said maximum Euclidian distance for purposes of determining the neighborhood vectors within the threshold tolerance.

10.   (original) A method according to claim 6, wherein said classifying of the unclassified entry includes classifying the unclassified entry with a median class represented by the neighborhood.

11.   (original) A method according to claim 6, wherein said class is described by a numerical value and said classifying of the unclassified entry includes classifying the unclassified entry with a mean of numerical values found in the neighborhood.

12.   (original) A method according to claim 6, wherein said classifying includes returning at least one number indicating the level of confidence of the class assignment.

13.   (original) A method according to claim 12, wherein said classifying includes returning a ratio defined by the number of entries in the neighborhood having the representative class over the number of entries in the neighborhood not having the representative class.

14.   (original) A method according to claim 12, wherein said class is described by a numerical value and said classifying includes returning a standard deviation of the numerical values in the neighborhood.

15.   (currently amended) A computer readable medium bearing computer executable instructions ~~for carrying out the a method of claim 1~~ comprising:
        instructions for assigning to each media entity of a plurality of media entities in a data set to at least one class, each class of said at least one class corresponding to a subset of perceptual properties pre-defined for the data set;
        instructions for processing each media entity of said data set to extract at least one digital signal processing characteristic for each media entity;

instructions for generating a plurality of feature vectors for said plurality of media

entities, wherein each vector includes said at least one class and said at least one digital signal

processing characteristic; and

instructions for forming a classification chain based upon said plurality of feature vectors.

16-17. (canceled)

18.   (original) A computing system, comprising:

a computing device including:

a classification chain data structure stored thereon having a plurality of classification

vectors, wherein each vector includes data representative of at least one perceptual class as

classified by humans and digital signal processing data as classified by at least one computing

device; and

processing means for comparing an unclassified media entity to the classification chain

data structure to determine at least one perceptual class of said unclassified media entity.

19.   (original) A computing system according to claim 18, wherein said comparing includes

determining a set of classification vectors that are within a neighborhood distance from a vector

represented by said unclassified media entity.

20.   (original) A computing system according to claim 19, wherein said neighborhood

distance defines a distance within which two vectors in the classification chain space are in the

same neighborhood.

21.   (original) A computing system according to claim 20, wherein said neighborhood

distance is determined for each of said at least one perceptual class, and said determination

includes determining a distance within which two vectors of the classification chain data

structure possess the same class given a threshold degree of error.

22.   (original) A computing device according to claim 21, wherein a human determines said threshold degree of error that will be tolerated, said threshold degree of error placing a maximum limit on the distance that may be used for determining neighborhoods.

23.   (original) A computing system according to claim 19, wherein said processing means classifies the unclassified entry with an estimate of at least one perceptual class based upon the vectors within the neighborhood of a vector representing the unclassified entity.

24.   (original) A computing system according to claim 23, wherein said classifying includes classifying the unclassified entry with a median class represented by the neighborhood.

25.   (original) A computing system according to claim 23, wherein said at least one perceptual class is described by a numerical value and said classifying of the unclassified entry includes classifying the unclassified entry with a mean of numerical values found in the neighborhood.

26.   (original) A computing system according to claim 23, wherein said classifying includes returning at least one number indicating the level of confidence of the class assignment.

27.   (original) A computing system according to claim 26, wherein said classifying includes returning a ratio defined by the number of entries in the neighborhood having the representative class over the number of entries in the neighborhood not having the representative class.

28.   (original) A computing system according to claim 26, wherein said class is described by a numerical value and said classifying includes returning a standard deviation of the numerical values in the neighborhood.

29.   (original) A computing system according to claim 18, further comprising:

an input device for receiving a new unclassified media entity; and

an output device for outputting at least one perceptual class of said new unclassified

media entity based upon said classification chain based upon processing of said processing

means.

30.   (original) A classification chain data structure utilized in connection with the

classification of new unclassified media entities, comprising:

a plurality of classification vectors, wherein each vector includes:

perceptual data classified by humans; and

digital signal processing data classified by at least one computing device.

31.   (original) A method of generating a classification chain having a plurality of vectors

describing a plurality of media entities, comprising:

assigning, by an expert, a first value to a media entity according to a pre-defined

perceptual characteristic of media entities;

assigning, by a computing system, a second value to the media entity according to a pre-

defined digital signal processing characteristic;

generating a vector based on at least said first value and said second value; and

adding said vector to a classification chain data structure.

32.   (original) A method according to claim 31, wherein said method is repeated until a

sufficient number of vectors have been added to said classification chain data structure, such that

said classification chain data structure successfully classifies unclassified media entities within a

threshold degree of success.

33.   (original) A method according to claim 32, further comprising:

inputting a vector representative of a new unclassified media entity;

comparing said vector to the vector space of the classification chain data structure; and

outputting an estimate of the perceptual class of the new unclassified media entity based

upon vectors found in a neighborhood of the classification chain data structure, wherein a

neighborhood of vectors is defined as a set of vectors located within a neighborhood distance.

34.   (original) A method according to claim 33, further comprising:

outputting an estimate of the confidence level with which said estimate of the perceptual

class is correct.

35.   (original) A method according to claim 34, wherein if said estimate of the confidence

level is low, a human examines the new unclassified media entity and said human determines an

action for said classification chain data structure based thereon.

36.   (original) A method according to claim 35, wherein said human adds a new subset of

perceptual properties to the classification chain data structure defined by the new unclassified

data structure.

37.   (original) A method according to claim 35, wherein said human modifies an existing

subset of perceptual properties represented by the classification chain data structure in

accordance with the results of the human examination.

38.   (original) A method according to claim 35, wherein the new unclassified media entity is

rejected from the classification chain as an outlier.

39.   (original) A method according to claim 35, wherein the performance level of the

classification chain improves over time due to the examination of unclassified media entities that

have a low confidence level associated therewith.

40.   (original) A method according to claim 33, wherein it is determined whether said vector representing said new unclassified media entity has been previously processed, thereby obviating the need to re-process said vector via the classification chain.